

## SEPARATION OF VARIABLES (practice)

In problems 1-8 find the general solution to the differential equation. In problems 9-10, find the solution to the initial value problem.

$$1. \frac{dy}{dx} = kx$$

$$2. \frac{dy}{dx} = ky$$

$$3. \frac{dy}{dx} = x^2 + k^2$$

$$4. \frac{dy}{dx} = y^2 + k^2$$

$$5. \frac{dy}{dx} = y + ky$$

$$6. \frac{dy}{dx} = y + k$$

$$7. \frac{dy}{dx} = kx - x$$

$$8. \frac{dy}{dx} = ky(x - 1)$$

$$9. \frac{dy}{dx} = \frac{x(y-2)}{x^2+4} \quad y(1) = 5$$

$$10. \frac{dy}{dx} = \frac{y}{x} \quad y(2) = 3$$